Measles Post-Exposure Prophylaxis

Recommendations for Non-Symptomatic Susceptible Contacts

Definition of susceptible contact:

Post-exposure prophylaxis (PEP) for measles can include either MMR vaccination or immune globulin (IG), and can be considered for asymptomatic susceptible contacts to measles. Either form is most effective when given as soon as possible after exposure to measles, and neither is appropriate after 6 days post-exposure. Both "susceptible" and "contact" deserve definition, and will require determination of their applicability to each individual considered:

Individuals become contacts by direct contact with nasal or throat secretions of infected persons or by sharing airspace with an infected person. When assessing this, keep in mind that a measles-infected person is infectious for 4 days prior to the onset of the rash as well as 4 days thereafter, and that infectious virus particles can remain in room air for at least 2 hours. It can be useful to further define intense exposure for situations like household contact, carpooling, or child day care.

Individuals are considered susceptible who have none of the following forms of evidence of immunity:

- written documentation of adequate vaccination:
  - one or more doses of a measles-containing vaccine administered on or after the first birthday for preschool-age children and adults not at high risk
  - two doses of measles-containing vaccine for school-age children and adults at high risk, including college students, healthcare personnel, and international travelers
- laboratory evidence of immunity
- history of laboratory confirmed measles disease
- birth before 1957

Risk factors and choice of PEP

Appropriate post-exposure prophylaxis depends on the contact's age, the presence/absence of special risk factors, and the time that has elapsed since the individual's exposure began (see Table below). Risk factors for severe illness or complications from measles include:

- Infants <12 months old
- Pregnant women
- People with compromised immune systems, regardless of previous measles vaccination status. This would include (but is not limited to):
- Severe primary immunodeficiency
- Bone marrow or stem cell transplant recipients receiving immunosuppressive treatment, or completed treatment within the past 12 months (longer if developed graft-versus-host disease)
- Receiving treatment for acute lymphocytic leukemia or who completed chemotherapy for ALL within the previous 6 months
- Persons living with AIDS and HIV-infected persons with CD4 T-lymphocyte percent less than 15 (any age) or CD4 T-lymphocyte count less than 200/mm^3, or who have not received MMR since starting to take anti-retroviral therapy, or HIV-infected persons without recent confirmation of immunologic status or measles immunity.

Individuals with such factors can be considered for IG, either IV or IM as noted in the chart below. As a general statement, use of IG is meant to prevent or ameliorate the severity of measles in those individuals at high risk, not as a form of outbreak control.

TABLE – DOSE AND TIMING OF MEASLES PEP		
Risk Status	**Time from First Exposure**	
	< 72 hours	**72 hrs through 6 days**
Age > 12 months, no risk factor	MMR vaccine 1st dose, or 2nd MMR if >28 days from MMR #1	Consider IGIM for intense exposure.
Infant < 6 months old	IGIM: 0.5 mL/kg	IGIM: 0.5 mL/kg
Infant 6 through 12 months	MMR (preferred) or IGIM 0.5 mL/kg	IGIM: 0.5 mL/kg
Pregnant woman	Intravenous IG (IGIV): 400 mg/kg	IGIV: 400 mg/kg
Severely immunocompromised	IGIV: 400 mg/kg	IGIV: 400 mg/kg

Contraindications

Contraindications for the use of MMR are the usual ones for this vaccine. Specific contraindications regarding IG include immunoglobulin A deficiency or a history of anaphylactic reaction to a previous dose of IG.

IGIM administration (for use in persons weighing less than 30 kg)

- Administer 0.5 mL/kg of IGIM in the anterolateral aspect of the upper thigh
- Do not administer more than 3 mL of IGIM per injection site; for infants and children weighing >6 kg, multiple injections are required
- Maximum total dose per IGIM administration is 15 mL
- Persons weighing >30 kg who receive IGIM are unlikely to receive an effective dose and should still be recommended for exclusion and social distancing. IGIV may be used in special situations (consult with Health Department)

Management of susceptible contacts after PEP

Except in healthcare settings, unvaccinated people who receive their second dose of MMR vaccine within 72 hours after exposure may return to childcare, school, or work. Healthcare personnel without evidence of immunity should be excluded from duty from day 3 after first exposure to day 21 after last exposure, regardless of post-exposure vaccine. After receipt of IG, people cannot return to healthcare settings. For those who received their first dose of MMR for PEP or those receiving IG, their settings (such as childcare, school, or work), factors such as immune status, intense or prolonged contact, and presence of populations at risk, should be taken into consideration before allowing people to return. These factors may decrease the effectiveness of PEP or increase the risk of disease and complications depending on the setting to which they are returning.

All individuals receiving PEP, as well as susceptible contacts who do not qualify for PEP, should be educated regarding self-monitoring for symptoms of measles. They should be encouraged to contact their health care provider by phone to discuss symptoms, rather than coming to the office or ED.

Any susceptible person > 12 months old exposed to measles who received IG should be urged to subsequently receive MMR vaccine if not contraindicated. MMR should be given no earlier than 6 months after IGIM or 8 months after IGIV.

If IG has been given within 2 weeks following administration of MMR or varicella vaccine, the individual should be revaccinated. The revaccination should be given no earlier than 6 months after IGIM or 8 months after IGIV.

For questions or clarifications, call the Grand Traverse County Health Department Communicable Disease line at 231-995-6125.